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10/516,965	02/11/2005	James Smith	93437	8572
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WELSH & KATZ, LTD 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			EXAMINER CROUSE, BRETT ALAN	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,965	<b>Applicant(s)</b> SMITH ET AL.	
	<b>Examiner</b> Brett A. Crouse	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☒ Claim(s) 31 and 34-38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20041203</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 31, and 34-38 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 31 and 34-38 are process claims, which ultimately depend from claim 25. Claim 25 is a product claim, thus claims 31 and 34-38 fail to further limit the subject matter of a previous claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 2, 5, 6, 8-10, 28-34 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Phillips et al., US 6,375,864 hereinafter known as Phillips.

Phillips teaches:

Column 2, lines 37-61, teach compositions and moulded or extruded phosphorescent plastic articles produced therefrom. The articles are preferably almost transparent, thus allowing light transmission. The phosphor pigments are preferably metal oxide aluminate which are europium activated. The phosphor is used in combination with a transparent or translucent resin (base material).

Column 3, line 64 through column 4, line 14, teaches that the resin can be thermoplastic or thermosetting and is preferably selected to be highly transparent.

Column 8, lines 4-44, provide example dyes and suitable resins. Examples of resins include polystyrene, polymethylmethacrylate, and polycarbonate. Additionally, the passage teaches that one of ordinary skill in the art can select a resin compatible with the phosphor (dye) without undue experimentation.

Column 5, lines 4-14, teach that strontium is a suitable metal for a metal aluminate phosphor, which employs europium as an activator.

Column 9, lines 1-8, teach the resins are typically powder, flake, granules, or pellets and that the pigments are typically powders.

Column 9, line 53 through column 14, examples 1-24, tables 1-6, teach a strontium aluminate, europium activated, phosphor which is injection molded with various resins, including polypropylene. Attention is directed to column 5, line 31 for the composition of G-300M pigment. Column 10, lines 25-39, teaches zinc sulfide, copper activated

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phosphor as a comparative example. As part of the weatherability and light fastness tests the plastic article was placed in proximity to a light source.

Claims 1, 2, 4-6, 8-10, 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Okuno et al., US 6,359,381 hereinafter known as Okuno as evidenced by ([http://www.nemoto.co.jp/product/01\\_luminova/index\\_e.html](http://www.nemoto.co.jp/product/01_luminova/index_e.html)), "Long Afterglow Phosphorescent pigment LumiNova®", Nemoto & Co.

Okuno teaches:

Column 1, lines 28-39, teach a lighting device having a light bulb onto which is deposited a phosphorescent layer which comprises a phosphorescent compound and resin.

Column 1, lines 45-49, teach a coating thickness range in which the illumination during regular lighting of the lamp will not be much decreased. This is held to teach the coating can transmit light.

Column 2, lines 41-46, teach strontium aluminate is preferred over zinc sulfide phosphors.

Column 2, lines 63-66, teach various activators for the strontium aluminate including europium.

Column 3, lines 5-19, teach various resins useful with the phosphorescent compound(s) including methacrylic resin, urethane resin, polystyrene, polycarbonate, polyethylene and polypropylene.

Column 3, lines 33-63, figure 1, teach a europium activated strontium aluminate phosphor, as evidenced by the web page concerning LumiNova® phosphorescent

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pigments, mixed with an acrylic urethane binder resin and solvent to form a paint and applied to a light bulb. Figure 1, reference numeral 3 teaches the light bulb has a filament. This is held to teach an incandescent light bulb.

Claims 1-4, 8, 9, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hata et al., EP 0,856,871 hereinafter known as Hata.

Hata teaches:

Page 3, lines 21-55, figure 1, teaches a fluorescent lamp which employs mercury discharge having on the inner surface of the glass bulb two phosphor layers. The first phosphor layer comprises a metal aluminate of formula  $MAI_2O_4$  in which M can be strontium, calcium or barium. The first phosphor additionally uses a europium activator.

Page 3, line 56 through page 4, line 8, figure 2, teaches a fluorescent lamp as in figure 1 additionally comprising an ultraviolet reflective layer between the phosphor layers and the glass bulb.

Page 4, line 44 through page 5, line 58, table 1, table 2, table 3, provide experimental examples of the lamps. The lamps comprise a europium activated strontium aluminate phosphor. Additionally, the lamps, which further comprise an ultraviolet reflective layer between the phosphor layers and the glass bulb, showed improved luminous flux.

Claims 1, 2, 5, 6, 7, 13 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Apple, US 5,833,349 hereinafter known as Apple.

Apple teaches:

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Column 2, lines 47-60, figure 1, figure 2, teach a lamp shade (cover) formed from a plastic sheet containing a phosphorescent additive. Preferably, the plastic sheet is translucent thermoplastic, such as a polyvinyl chloride or polyethylene.

Column 1, lines 29-40, teaches a translucent lamp shade in which a cloth (fabric) has a phosphorescent material applied thereto.

Claims 1, 3, 4, 11 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Cordy, US 5,190,365 hereinafter known as Cordy.

Cordy teaches:

As to claims 1, 3, 4 and 11:

Column 3, lines 24 through column 5, line 8, figure 3, teaches a fluorescent lamp having a glass layer. A portion of the glass layer is coated with a reflective material. Column 3, lines 56-63, teach that the reflective material can be deposited on the inner or outer surface of the glass. A second portion of the glass layer is coated with a phosphorescent material. The phosphorescent coating is shown in figure 3 as deposited on the inside of the glass. This is held to teach that the phosphor coating is integral with the lamp.

As to claim 17:

Column 6, lines 19-37, figures 6 and 7, teach that a lens (shown in figure 7) can be used to collect the light generated by the lamp.

Claims 1-6, 8, 9, 11-16, 18, 19, 20, 23, 24, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Baillie et al., WO 02/075205 hereinafter known as Baillie.

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Baillie teaches:

Page 4, line 20 through page 5, line 7, teach that the light fittings of Baillie include light and lamp shades, light reflectors, light bulbs, light tubes including fluorescent light tubes, covers of light sources, strip light protective sleeves. The passage additionally teaches that the articles can be covered in part or in their entirety.

Page 2, lines 5-10, teach that the light fittings are used in proximity to an artificial light source and comprise a luminescent material which is charged by the light emitted by the light source and which emits light when the light source is extinguished. This is held to teach that the luminescent material satisfies the limitation of a phosphor of the instant invention.

Page 3, lines 4-9, teach that the luminescent material is preferably a rare earth metal such as europium. Additionally, the luminescent material preferably also comprises an alkaline earth metal, which is preferably strontium.

Page 6, lines 5-11, teach that the preferred embodiment of the luminescent material comprises europium or dysprosium preferably in combination with strontium oxides or aluminates. It is held that one of ordinary skill in the art would at once envisage the luminescent material comprising strontium aluminate(s) and europium.

Page 5, line 14 through page 6, line 2, teaches the fitting can be formed from various base materials including glass and plastics. Examples of suitable plastics include acrylics, polyolefins such as polypropylene, polystyrene and polycarbonate.

Page 6, lines 12 through page 7, line 7, teach that the base material should preferably be of high clarity to allow transmission of light. The passage additionally teaches that the



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luminescent material can be incorporated into the base material or can be provided as a film or coating upon the base material.

Claims 1, 2, 5, 6, 13, 14, 15, 17, 28, 30 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Connor et al., GB 1,491,681 hereinafter known as O'Connor.

O'Connor teaches:

Page 1, lines 25-33, teach an elongate translucent plastic tube place in close proximity to a light source. The plastic tube comprises or is coated with, a luminescent material. This is held to teach a phosphor. Suitable coatings are commonly in the form of paints.

Page 1, lines 40-44, teach that the plastic can be polyethylene, polypropylene, polyvinyl chloride, polystyrene or polymethyl methacrylate.

Page 1, lines 53-80, teach the luminescent material can be incorporated into the tube as an additive prior to extrusion or moulding. The passage also teaches that the cover can be a heat shrinkable film, which is slid over the tube. This is held to teach mixing the phosphor with plastic and extruding or molding a cover sleeve.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apple, US 5,833,349 hereinafter known as Apple as applied to claims 1, 2, 5, 6, 7, 13 and 18 above.

The teachings of Apple as in the rejection above are relied upon.

Apple teaches:

Column 3, lines 14-16, figure 1, teach a light bulb as reference numeral 22.

Column 2, lines 24-28, teach that a user can choose a lamp independent of the lamp shade.

Apple does not teach:

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Apple does not teach a specific method of emission for the light bulb, such as incandescent or fluorescent. However, Apple teaches that the lamp can be selected according to taste.

It would have been obvious to one of ordinary skill in the art to select the light bulb from commonly available incandescent and fluorescent bulbs to choose an output color according to taste.

Claims 21, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baillie et al., WO 02/075205 hereinafter known as Baillie as applied to claims 1-6, 8, 9, 11-16, 18-20, 23, 24, 26 and 27 above.

The teaching of Baillie as in the rejection above is relied upon.

Baillie teaches:

Page 11, lines 9-15, teach the fitting providing connection pins for a fluorescent tube.

Baillie does not teach:

Baillie does not provide a teaching of friction fit end piece as part of a sleeve encompassing a fluorescent tube. However, Baillie does provide a fluorescent tube in which the mounting (i.e. the fitting of Baillie) encompasses the tube by being integral with the tube and provides connection pins for the fluorescent tube as part of the mounting. Baillie also teaches sleeves which can encompass a light tube.

Motivation:

It would have been obvious to one of ordinary skill in the art to provide a sleeve encompassing a light tube as taught by Baillie which employs friction fit end pieces

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which allow the connection pins of the light tube of Baillie to penetrate to allow connection to a socket as taught by Baillie so as to enable the application of the sleeve, which can encompass the entire tube, to a light tube by providing an opening in the sleeve and end pieces for completely encompassing the tube once the tube has been inserted into the sleeve.

Claims 29, 31, 32 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al., GB 1,491,681 hereinafter known as O'Connor as applied to claims 1, 2, 5, 6, 13, 14, 15, 17, 28, 30 and 33 above, and further in view of Phillips et al., US 6,375,864 hereinafter known as Phillips.

For purposes of this rejection claims 31 and 34-38 are assumed to ultimately depend from claim 28 rather than claim 25.

The teachings of O'Connor as in the rejection above are relied upon.

O'Connor does not teach:

O'Connor does not teach a material form of the plastic in preparing a moulding or extrusion material. Additionally, O'Connor does not teach a composition of the phosphor, providing only a structure and base material composition for the article.

Phillips teaches:

Column 2, lines 37-61, teach compositions and moulded or extruded phosphorescent plastic articles produced therefrom. The articles are preferably almost transparent, thus allowing light transmission. The phosphor pigments are preferably metal oxide aluminate

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which are europium activated. The phosphor is used in combination with a transparent or translucent resin (base material).

Column 3, line 64 through column 4, line 14, teaches that the resin can be thermoplastic or thermosetting and is preferably selected to be highly transparent.

Column 8, lines 4-44, provide example dyes and suitable resins. Examples of resins include polystyrene, polymethylmethacrylate, and polycarbonate. Additionally, the passage teaches that one of ordinary skill in the art can select a resin compatible with the phosphor (dye) without undue experimentation.

Column 5, lines 4-14, teach that strontium is a suitable metal for a metal aluminate phosphor, which employs europium as an activator.

Column 9, lines 1-8, teach the resins are typically powder, flake, granules, or pellets and that the pigments are typically powders.

Column 9, line 53 through column 14, examples 1-24, tables 1-6, teach a strontium aluminate, europium activated, phosphor which is injection molded with various resins, including polypropylene. Attention is directed to column 5, line 31 for the composition of G-300M pigment. Column 10, lines 25-39, teaches zinc sulfide, copper activated phosphor as a comparative example. As part of the weatherability and light fastness tests the plastic article was placed in proximity to a light source.

#### Motivation to Combine:

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the preferred pigments of Phillips in the plastic base materials taught by O'Connor to produce a composition suitable for extrusion or moulding as taught by

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O'Connor and Phillips. Additionally, it would have been obvious to one of ordinary skill in the art to select a processing temperature within the limitations of claims 35, 36, and 37 for process optimization.

Claims 31, 32 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al., GB 1,491,681 hereinafter known as O'Connor as applied to claims 1, 2, 5, 6, 13, 14, 15, 17, 28, 30 and 33 above, and further in view of Baillie et al., WO 02/075205 hereinafter known as Baillie.

For purposes of this rejection claims 31 and 34-38 are assumed to ultimately depend from claim 28 rather than claim 25.

The teachings of O'Connor as in the rejection above are relied upon.

O'Connor does not teach:

O'Connor does not teach a composition of the phosphor, providing only a structure and base material composition for the article.

Baillie teaches:

Page 4, line 20 through page 5, line 7, teach that the light fittings of Baillie include light and lamp shades, light reflectors, light bulbs, light tubes including fluorescent light tubes, covers of light sources, strip light protective sleeves. The passage additionally teaches that the articles can be covered in part or in their entirety.

Page 2, lines 5-10, teach that the light fittings are used in proximity to an artificial light source and comprise a luminescent material which is charged by the light emitted by the light source and which emits light when the light source is extinguished. This is held to

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teach that the luminescent material satisfies the limitation of a phosphor of the instant invention.

Page 3, lines 4-9, teach that the luminescent material is preferably a rare earth metal such as europium. Additionally, the luminescent material preferably also comprises an alkaline earth metal, which is preferably strontium.

Page 6, lines 5-11, teach that the preferred embodiment of the luminescent material comprises europium or dysprosium preferably in combination with strontium oxides or aluminates. It is held that one of ordinary skill in the art would at once envisage the luminescent material comprising strontium aluminate(s) and europium.

Page 5, line 14 through page 6, line 2, teaches the fitting can be formed from various base materials including glass and plastics. Examples of suitable plastics include acrylics, polyolefins such as polypropylene, polystyrene and polycarbonate.

Page 6, lines 12 through page 7, line 7, teach that the base material should preferably be of high clarity to allow transmission of light. The passage additionally teaches that the luminescent material can be incorporated into the base material or can be provided as a film or coating upon the base material.

Page 3, line 25 through page 4, line 13, teaches a preferred embodiment in which the fitting additionally comprises a colorant. Preferably, the colorant and coating is stable up to a temperature of about 250 degrees Celsius.

#### Motivation to Combine:

O'Connor and Baillie both teach plastic light sleeves of common materials comprising luminescent materials. It would have been obvious to one of ordinary skill in the art at the

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time of invention to incorporate the preferred luminescent materials of Baillie in the plastic base materials taught by both O'Connor and Baillie to produce a composition suitable for extrusion or moulding as taught by O'Connor. Additionally, it would have been obvious to one of ordinary skill in the art to select a processing temperature within the limitations of claims 35, 36, and 37 to achieve process optimization without degrading the components of light cover as suggested by Baillie.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brett A. Crouse whose telephone number is 571-272-6494. The examiner can normally be reached on Monday - Friday 6:00AM - 2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BAC



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SUPERVISORY PATENT EXAMINER